AMENDMENTS TO THE SPECIFICATION:

Please amend page 29, lines 16 through page 30, line 8 of the specification as follows:

In an alternative embodiment, a diamondoid-containing molecular crystal or polymeric biological probe may include a dopant impurity for photoluminesence. The dopant may be a rare earth element, transition element, actinide, or lanthanide. Photoluminescent dopants may be inserted into a diamondoid-containing material according to present embodiments by self-assembly, crystallization, and polymerization techniques similar to those used for nitrogen-vacancy color centers. An exemplary self-assembled or crystallized material suitable for use in a biological label is shown generally at ~~1100~~ 1101 in FIG. 11A. Diamondoids 1102-1107 may be generally disposed around an optically active dopant 1108. The photoluminescent dopant may comprise a rare earth element, transition element, actinide, or lanthanide, or mixture thereof. The optically active dopant may be selected from the group consisting of titanium, vanadium, chromium, iron, cobalt, nickel, zinc, zirconium, niobium, cadmium, hafnium, tantalum, tungsten, rhenium, osmium, iridium, platinum, gold, mercury, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and uranium. Some of the diamondoids surrounding the optically active dopant 1108, and comprising the pocket in which the dopant sits, may be either positioned in close proximity to the dopant atom, in contact with it, or even bonded to it in some manner, such as through a covalent or ionic bond, or through London forces. Exemplary diamondoids in FIG. 11A include 1103, 1105, and 1107. Other diamondoids comprising the pocket may be positioned further away from the dopant atom; such diamondoids include 1102, 1104, and 1106. These more distant diamondoids may also exert a force on the dopant, or no force at all. The dopant atom may also be chemically inert with respect to its diamondoid hosts. Of course, in keeping with the definition of diamondoids in this disclosure, the diamondoids may also be heterodiamondoids, or derivatives thereof.

Please amend page 30, lines 9-15 of the specification as follows:

A polymerized diamondoid-containing material that may host an optically active dopant atom is shown generally at 1110 in FIG. 11B. This exemplary material comprises four diamondoids 1111-1114 that form a pore within which an optically active dopant atom

1115 resides. As with the molecular crystal 1101 of FIG. 11A, any of the diamondoids 1111-1114 that comprise polymerized material 1110 may contact or be bonded in some manner to the dopant atom, or they may be chemically inert to it and the optically active dopant atom 1115 may be held in place mechanically.

Please amend page 31, lines 25-29 of the specification as follows:

Bawendi et al. further teach that photoluminescent yield of the quantum dots may be improved by passivating the surface with organic ligands to eliminate forbidden energy levels that lie within the bandgap. Passivation of quantum dots using inorganic materials has also been reported. Bawendi et al. ~~This patent~~ teaches the preparation of highly luminescent ZnS-capped CdSe nanocrystallites having a narrow particle size distribution.

Please amend page 37, lines 24-34 of the specification as follows:

The cell transport properties of adamantine (1-amino adamantane, $C_{10}H_{17}N$) have been discussed by Roger K. Murray, professor at Saint Joseph's University, who has stated in his Research Interests (http://www.sju.edu/cas/chemistry/rmurray/research.html) that "amantadine enters all cell membranes, crosses the blood-brain barrier, and has nearly ideal pharmacokinetic and metabolic profiles." A further discussion of membrane permeation has been provided by Verber et. al. (GlaxoSmithKline; Verber et al., *J. Med. Chem. 45*, 2615 (2002)), who has disclosed that membrane permeation is recognized as a common requirement for oral bioavailability in the absence of active transport, and failure to achieve this usually results in poor oral bioavailability. Verber's work included making measurements of the oral bioavailability in rats of over 1,100 drug candidates. The results showed that key molecular properties such as reduced molecular flexibility, as measured by the number of rotatable bonds, low polar surface area or total hydrogen bond count, are found to be good predictors of oral bioavailability.